STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
WASTE MANAGEMENT DIVISION
UNDERGROUND STORAGE TANK (UST) CLOSURE
Env-Wm 1401.18
SAMPLING & REPORTING GUIDELINES
(JULY 1999)

A. INTRODUCTION

1. These UST Closure Sampling and Reporting Guidelines (Guidelines) for underground storage tank closure were prepared by the Department of Environmental Services (DES), Waste Management Division (Division). The guidelines are in accordance with State of New Hampshire Administrative Rules Env-Wm 1401 Underground Storage Facilities and Env-Ws 412 Reporting and Remediation of Oil Discharges. These Guidelines do not replace or supersede Env-Wm 1401 or Env-Ws 412. When planning permanent tank closure activities refer to Env-Wm 1401.18 and Env-Ws 412 in addition to these Guidelines. Also refer to API 1604, API1631, and API 2015.

2. Copies of Env-Wm 1401 and Env-Ws 412 may be obtained by calling the DES Public Information and Permit Office at (603) 271-6578 or from the Oil Remediation and Compliance Bureau WEB Page (http://www.state.nh.us/des/orcb). The API documents may be obtained by calling the American Petroleum Institute at (202) 682-8000.

3. Note that the UST rules require that the facility owner employ an International Fire Code Institute (IFCI) certified contractor and notify the Division at least 30 days prior to any tank closure activities at (603) 271-3644. Also note that the Petroleum Reimbursement Fund Rules require prior Division approval of costs of managing contaminated soil. See Authorization for Initial Response Action Form and the DES October 9, 1998, guidance letter for more information on estimating costs.

B. PURPOSE

1. The purpose of the Guidelines is to provide more detailed sampling, analysis and reporting guidance than is available in applicable rules, establish more uniformity among tank closure submittal, increase confidence in data quality, and improve Division review/response time. Please note, the Division may require additional sampling and analysis if these guidelines are not followed.

C. FIELD SCREENING

1. Field screening of soil and groundwater shall be performed during excavation for each tank and piping system which will be removed or closed-in-place. Field screening shall include a visual and olfactory assessment of soil and groundwater for indications of possible contamination including:

a. Areas of stained or darkened soil
b. Unusually wet or damp soil
c. An apparent petroleum odor in soil or groundwater
d. Corrosion or holes in tank system components

Field screening shall also include measurement of total volatile organic compound (VOC) concentration in soil and groundwater samples using a photoionization detector (PID) or a portable gas chromatograph (GC). The VOC concentration shall be measured using the jar headspace technique.

1. Consider other available information including site history, loss of product indicated by inventory records, the presence of dead vegetation or buried containers when assessing whether or not contamination may be present.

2. Stockpile soil suspected of being petroleum contaminated based on field screening separately from other soil. Soil in the suspected contaminated stockpile shall be tested and disposed of in accordance with Env-Ws-412. Soil in the not contaminated stockpile may be considered for reuse on-site.

D. SAMPLING

1. Sample existing release detection devices and subsurface monitoring locations before tanks are removed from the ground.

2. Obtain soil and groundwater samples in the vicinity of tank system components, and submit the samples for laboratory analysis to identify possible petroleum contamination.

3. Collect samples for each tank excavated. The number and types of samples submitted for laboratory analyses are described in the table below:

Subsurface Condition	**Sampling Requirement**
No groundwater encountered, No soil contamination suspected	Prepare a minimum of **one composite soil sample** comprised of at least five discrete grab samples collected from representative location(s) immediately beneath the tank and piping system, and mixed into one sampling container. For each tank and piping system which will be closed-in-place, samples shall be collected at representative locations adjacent to or beneath the tank and piping system by excavating adjacent to the tank and piping system, or by cutting sampling access points through the tank wall.
Groundwater encountered, No soil contamination suspected:	Collect a minimum of **one discrete groundwater sample**. Prepare a minimum of **one composite soil sample** comprised of at least five discrete grab samples collected from representative location(s) immediately beneath or adjacent to the tank and piping system, and mixed into one sampling container. If groundwater contamination within the excavation is observed by physical observations or field screening, the discrete groundwater sample shall be collected within the area of highest observed contamination.
No groundwater encountered, Soil contamination	If no groundwater is encountered, and soil contamination is suspected based upon field screening, collect a **minimum of two discrete soil samples** from representative location(s) immediately beneath or adjacent to the tank and piping system. Discrete soil samples shall be collected within the area of highest observed contamination.

suspected	If contamination is believed to be limited in extent, additional soil (or groundwater) samples may be collected to define the extent of contamination.
Groundwater encountered,	A minimum of **one discrete groundwater** sample, and a **minimum of two discrete soil samples** shall be collected from representative location(s) immediately beneath or adjacent to the tank and piping system. Discrete samples shall be collected within the area of highest observed contamination.
Soil contamination suspected	If contamination is believed to be limited in extent, additional soil or groundwater samples may be collected to define the extent of contamination.

4. If free product is encountered, a minimum of one sample of the product should be collected, laboratory analysis performed, and the sample characteristics described in the report, including an estimate of the type of product (gasoline, kerosene, No. 2 fuel oil, etc.), and degree of weathering.

E. ANALYSIS

Laboratory analysis shall be performed in accordance with the soil and water analyses listed in Table 1 of this document.

1. Samples for laboratory testing must be stored in approved containers. Each soil sample shall be submitted in laboratory approved, 4 oz. wide-mouthed pre-cleaned glass jars with Teflon lined caps. Each water sample shall be submitted in duplicate laboratory approved 40 ml pre-cleaned vials with Teflon-lined caps. Water samples shall be preserved to limit bacterial decomposition of organics. Vials for water samples shall be filled in such a manner that no air bubbles are entrapped after the vial is capped. Jars for soil samples shall be filled to minimize headspace. All samples shall be iced or refrigerated from time of collection until analysis and should be delivered to the laboratory as soon as possible. Samples shall be accompanied by a chain of custody form.

F. REPORTING

1. A written Underground Storage Tank Closure Investigation Report (Report) relating to the tank system closure shall be submitted to DES within 30 days of closure. The site investigation shall include:

    a. The names and affiliation of all on-site personnel including facility owner/operator and closure contractor(s) with IFCI certification number;
    b. A completed Tank Closure Report Form;
    c. Results of field screening, field sampling and laboratory analysis;
    d. A locus map drawn to scale showing the site location relative to highways and other major physical features;
    e. A site map drawn to scale showing the location of tank system components, extent of excavations, and sampling locations. Include a north arrow and prominent site physical features for reference;
    f. Subsurface information obtained during excavation activities in the form of a test pit log. Include soil descriptions, sample locations, and depth of groundwater,

if encountered;

g. Results of the detailed visual inspection of each removed tank, or closed-in-place tank system;

h. Labeled photographs indicating the former tank system(s) location(s) and orientation. Include photographs of showing corrosion, holes and indication of leakage. For close-up photographs, include a familiar object such as a pencil or other small object for scale reference.

i. If closure in-place was selected, include justification for using this option;

j. The IFCI certified individual who is overseeing the removal of a UST system must provide the following signed statement:

In accordance with the New Hampshire Code of Administrative Rules, Wm 1401.18(e), I hereby confirm that I am certified by the International Fire Code Institute for **decommissioning** underground storage (UST) tank systems regulated by Env-Wm 1401. I certify that I was onsite and in responsible charge at all times when work was being done to permanently close the listed UST systems:

Facility ID Number
Facility Owner Name
Facility Location
Facility Town/City

System No.	***Capacity***	***Product Stored***

Tank Decommissioning activities occurred during the time period of _____ through _____.

_____ _____

Type or Print Name *Signature*

_____ _____ _____

IFCI Number *Date of Signature* *Company*

Must be filed with closure report documents.

July 1, 1999 C:\FACTSHEE\CLOSE\CLODOC3.DOC

TABLE 1

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
RECOMMENDED ANALYTICAL METHODS FOR PETROLEUM CONTAMINATED SITES (1)

PETROLEUM PRODUCT	WATER MATRIX		SOIL MATRIX (See note 2)	
	Analyses	**Recommended Analytical Methods (See note 3)**	**Analyses**	**Recommended Analytical Methods (See note 3)**
Gasoline and Similar Weight Products	VOC	8260B (See notes 4, 7)	VOC TPH-as Gasoline	8260B (See notes 4, 7) 8015B-GRO (See note 7)
No. 2, 4, 6 Fuel Oil, Diesel, Waste Oil and similar weight products	VOC PAH	8260B (See notes 4, 7) 8310 or 525 or 8270(See note 5)	VOC PAH TPH-as Fuel Oil TCLP Metals: As,Ba,Cd,Cr,Pb,Hg, Se,Ag(waste oil only)	8260B (See notes 4, 7) 8270 or 8310 8015B-DRO See Appendix C of the NHDES RCM Policy (See note 6)

VOC: Volatile Organic Compounds
TPH: Total Petroleum Hydrocarbons
GC/MS: Gas Chromatography / Mass Spectrometry
MTBE: Methyl-t-butyl ether
AGQS: Ambient Groundwater Quality Standards
PAH: Polyaromatic Hydrocarbons
P&T-GC/FID: Purge and Trap - Gas Chromatography / Flame Ionization Detector
TCLP: Toxicity Characteristic Leaching Procedure
RCM Policy: NHDES Contaminated Sites Risk Characterization and Management Policy
PQL: Practical Quantification Limits

NOTES:
(1) EPA method results must be reported to DES according to SW 846 current edition.
(2) Soils destined for off-site treatment must be analyzed in accordance with Env-Ws 412.14.
(3) For the purpose of site closure, the analytical method shall be capable of detecting concentrations lower than the regulatory cleanup level.
(4) VOC analysis via 8260B shall include all compounds on DES' modified list of analyses. PQLs for soil analysis are listed in Appendix C of the RCM Policy.
(5) Ion-specific analysis is required for 8270 tests in order to reach detection limits that are less than the AGQS.
(6) Metals analysis must be performed on waste oil contaminated soils. Soil standards in the NHDES RCM Policy are based on total metals. Analysis for soils destined for off-site treatment are based on TCLP.
(7) Samples collected after March 2000 shall be collected in accordance with EPA method 5035 or ASTM D4547-98.